

SCOTTISH HOME DEPARTMENT

REPORT OF THE WORKING PARTY
ON THE VALUATION FOR RATING
OF WATERWORKS IN SCOTLAND

EDINBURGH: HER MAJESTY'S STATIONERY OFFICE

1955

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Report of the Working Party on the Valuation for Rating of Waterworks in Scotland

Appointment

1. We were appointed in December, 1954, as the result of consultations between the Secretary of State and the local authority Associations in pursuance of the suggestion made in paragraph 110 of the Report of the Scottish Valuation and Rating Committee under Lord Sorn's chairmanship (Cmd. 9244)* that the tentative proposals which they made for changes in the method of valuing waterworks and gasworks should be investigated further. Our remit concerned the valuation of water undertakings; a similar working party was appointed at the same time to investigate the valuation of gasworks. Several of our members have taken part in both investigations.

Scope of the Investigation

2. The object set before us was to prepare an assessment of the practical possibilities of improving the method of valuing waterworks which could be considered by the Secretary of State and the local authority Associations. We have held seven meetings, the first two of which were joint meetings with the working party on the valuation of gasworks, and we now submit our report.

3. A preliminary suggestion made to us which we should dispose of at the outset is that waterworks, as a public service enjoyed by virtually the whole community, might well be exempted from rates. The adoption of this suggestion would have greatly simplified our labours but it seemed to us to raise questions of principle quite beyond the scope of our enquiry. We observe, however, that similar claims might be advanced for other public services. Moreover, we understand that in some areas a large proportion of the water supply is consumed by a few industrial concerns. One effect of exempting waterworks would also be to remove rateable value from certain areas of otherwise low valuation. Another question is whether the contribution at present made by waterworks to rating is equitable taking Scotland as a whole. Into this also we have not felt called to enter, for we are not aware of any suggestions that the total effect of the rating of waterworks is unreasonable and we have assumed that the questions before us relate rather to the equity of the methods of valuation by which the liabilities of individual water undertakings and the receipts of individual rating authorities are determined.

The Revenue Principle

4. The valuation of water undertakings is at present carried out in accordance with the revenue principle as it has been evolved over the years in the light of Court decisions. Most waterworks are valued by local assessors, but fifteen undertakings which are situated in more than one rating area are valued by the Assessor of Public Undertakings.

5. In essence the revenue principle seeks to establish by reference to the accounts of the undertaking the rent which a hypothetical tenant would be willing to pay for the undertaking in its actual state; it does so by deducting from the revenue the expenses incurred in earning that revenue. A brief

* H.M.S.O., Price 3s. 6d.

description of the revenue principle is, for convenience, contained in Appendix I to our Report. The Sorn Committee discuss criticisms of this method of valuation in paragraphs 110 and 111 of their Report, and say at the beginning of paragraph 112 that the experts who advised them (members of the Scottish Branch of the Royal Institution of Chartered Surveyors) were unable to suggest the introduction of any new factor which would remove the features to which objection is taken in its present operation. We nevertheless felt that the starting point for our enquiry should be to examine the present method of applying the revenue principle and to investigate further the possibility of improving it. In this connection we have had the benefit of statements explaining the application of the revenue principle in England and Wales, which differs in some respects from the Scottish method of applying it. These were most kindly prepared for us by the Valuation Department of the Board of Inland Revenue. We later consider possible alternative methods of valuation, especially the new method by reference to a "norm" of capital cost which the Sorn Committee suggested for further investigation, and the apportionment of the *cumulo* valuation of an undertaking to the separately rated areas in which it is situated.

6. It may be convenient first to summarise the defects of the revenue principle as it is at present applied to waterworks in Scotland. The criticisms, including those discussed in the Sorn Report, which we have considered are the following :—

(a) The revenue and therefore the annual value of public undertakings is largely determined by the amount of loan debt outstanding. Rateable value therefore largely depends on the incidence of capital expenditure and on the financial or accounting policy of the undertaking.

(b) In consequence, values tend to rise and fall over long periods. This is objectionable alike to the undertaking and to the rating authorities. It is already customary to average values over three years, but averaging over a very long period indeed would be required to eliminate such variations.

(c) Apart from these long-term movements, short-term fluctuations in revenue from one year to another cause fluctuations in value, which are only partly offset by the practice of averaging over three years.

(d) The amount of capital expenditure incurred by different water undertakings varies very considerably according to the location and nature of the sources of supply which happen to be available, but it is output rather than these circumstances which would determine the rent a hypothetical tenant would be prepared to pay.

(e) The valuation in some cases reflects expenditure on landlord's renewals at post-war costs for which no deduction is allowed.

(f) Allowance is not made for payments to reserve.

(g) No allowance is made for the payment of owners' rates; the valuation therefore results in the payment of rates on rates.

(h) As the operation of the principle depends on case law judicial decisions may make it most difficult for assessors to introduce modifications when general circumstances change.

(i) Valuations by the revenue principle are revised annually, whereas in practice the valuations of most other properties are not reviewed each year.

7. The complaint that rates are paid on rates is of course a general one and is answered by the announcement of the Government's intention to introduce legislation to give effect to the main recommendations of the Sorn Committee, including the abolition of owners' rates. The implementation of the Committee's proposals will also secure that all valuations are reviewed every five years. The difficulties arising from expenditure on landlord's renewals, on works which are not fully used and on payments to reserve, and to a limited extent from fluctuations in value, could, we think, be removed or at least mitigated by the adoption of the alternative modifications of the revenue principle which we discuss in the following paragraphs.

Possible Modifications of the Revenue Principle

8. We first considered whether modifications of the revenue principle on the lines of those suggested by the first Sorn Committee for the valuation of hydro-electric undertakings could suitably be adopted for waterworks. The Committee made three suggestions for modifying the rateable value of hydro-electric generating works as brought out by the ordinary application of the revenue principle; a note is appended (Appendix II) explaining these suggestions and the circumstances in which they were recommended. One of them was subsequently adopted and given statutory effect in the Hydro-Electric Undertakings (Valuation for Rating) (Scotland) Act, 1945, and remained in force until the special arrangements for payments by electricity undertakings for the benefit of local authorities were introduced by the Local Government Act, 1948. In brief the Committee's proposals were that a special deduction should be made from the valuation of hydro-electric generating works as brought out by the revenue principle, either of a fixed percentage or of a proportion which depended on the extent to which the capital cost of the generating works exceeded £30 per kilowatt; the object was to reduce the difference between the valuation of steam and hydro-electric generating stations of similar capacity caused by the much greater capital cost of the latter. It thus dealt with a situation which has no exact parallel in the present investigation of the valuation of waterworks and it appears to us that a device of this kind for reducing the valuation arrived at by the revenue principle would not properly meet the views stressed by the second Sorn Committee that valuation should respond to economic changes. Although proposals on these lines might reduce the burden of rates falling on certain water undertakings as a result of capital expenditure at high costs, they could not level up values at any later period when the revenue principle might operate to depress them. After careful consideration we cannot recommend that the revenue principle in its application to waterworks should be modified on the lines of the Act of 1945 or of the alternative suggestions made by the first Sorn Committee.

9. It appears to us that it would be practicable to amend the revenue method in the following respects:—

(a) DEDUCTIONS FOR LANDLORD'S RENEWALS

10. In the allowance made for landlord's renewals there are important differences between the methods followed in applying the revenue principle in Scotland and in England and Wales.

11. In Scotland a distinction is made between water undertakings regarded as profit-earning and those regarded as non-profit-earning. Expenditure on renewals by profit-earning undertakings is treated in the same way as expenditure on new works or extensions to the undertakings. Thus, in these cases replacements of outworn works are reflected in an increase in valuation, although they do no more than maintain the undertaking in its present state. On the other hand a deduction is allowed in the name of profits, usually taken as 15–20 per cent. of the adjusted net revenue after deduction of the allowance for tenant's capital. In the case of non-profit-earning undertakings both tenant's and landlord's working charges, including renewals of the various parts which make up the undertaking, are allowed as a deduction from gross revenue. For both kinds of undertaking a further deduction of 20 per cent. is allowed from gross annual value under the Rating (Scotland) Act, 1926, to arrive at the net annual value and rateable value.

12. In England and Wales provision is made under the revenue principle for a deduction in respect of renewals and the valuation arrived at is regarded as the net annual value. There is, therefore, no further 20 per cent. reduction as in Scotland. We understand that in practice the amounts contributed to a renewals fund have been allowed as deductions, even when they have been

unrelated to the amounts actually spent on renewals. This practice apparently tended to result in unrealistically low valuations, and a test case (Birmingham waterworks) was taken before the Lands Tribunal and decided on the 1st July. The Tribunal considered that the reservoirs and certain other items were not appropriate subjects for the provision of a renewals sinking fund because they could not be regarded as subjects of a perishable nature but were rather in the nature of a risk to be taken into account in determining the tenant's share, which the Tribunal fixed at 9 per cent. of the gross receipts. The Tribunal did not specify the certain other items on which they thought no sinking fund provision should be allowed, but they reduced the sinking fund provision from the £300,000 claimed to £200,000.

13. It seems to us in the first place that the distinction between the so-called profit-earning undertakings and other undertakings is artificial having regard to the actual circumstances under which public utilities work, and we think that all water undertakings could reasonably be treated as non-profit-earning. In practice, however, it seems unlikely that the change would substantially alter the valuation of the undertakings concerned. The Assessor of Public Undertakings has prepared the following table showing the valuations for 1954-55 of the seven profit-earning undertakings valued by him, and the estimated valuations that might have been brought out if they had been treated as non-profit-earning.

Undertaking	Net Annual and Rateable Value	
	(a) Present Basis	(b) Treated as Non-profit-earning
	£	£
Aberdeen	50,670	57,002
Burntisland	1,412	1,338
Dundee	39,260	41,390
Edinburgh	75,627	76,743
Greenock	19,414	21,778
Kirkcaldy	11,957	12,260
Troon	4,789	4,731

It will be observed that the loss of the profits allowance in most cases outweighs the allowance of a deduction for actual expenditure on renewals in the year in question. This effect might be mitigated if a different basis could be adopted for the renewals allowance, and we have therefore considered what alternatives to the deduction of actual expenditure on renewals might be acceptable. For some classes of undertaking payments to renewal funds might reasonably be allowed as a deduction, but according to our information water undertakings in Scotland do not normally operate such funds. We understand that the Gas Working Party are suggesting that the revenue principle should be modified in its application to the Scottish Gas Board's undertaking so as to allow in all cases a deduction from gross receipts in respect of sums set aside each year for the depreciation of the landlord's plant, provided that the assessor satisfies himself that the payments are reasonably and accurately related to the life of the assets, having in mind the extent to which their value has already been written off. It appears, however, that in as much as water undertakings do not in practice make depreciation payments, such an allowance could not reasonably be applied to them.

14. It may also be observed that in the case of water undertakings which are regarded as non-profit-earning the valuation is arrived at by a method similar to that followed in England and Wales and is really a net annual value before the 20 per cent. deduction authorised by the Act of 1926 is made. To treat all undertakings as non-profit-earning would therefore be consistent with the recommendation in paragraph 51 of the Sorn Report that the net annual value should be estimated direct. If this were done it would follow that the 1926

deduction should be discontinued, as is proposed in the case of other subjects for which a net value is to be estimated direct under the Committee's proposals. The broad effect of the change would thus be to increase water valuations as compared with those of other properties to the extent represented by the withdrawal of the deduction.

15. The deduction appears to us on examination not to be wholly comparable with the English statutory deductions from the gross annual values of houses and other properties. It was granted broadly to preserve the abatements of value enjoyed under earlier statutes by water undertakings and other subjects. The poor rate, for example, was levied by parish councils on the net annual value; and for certain burgh rates the value of underground pipes was reduced by three quarters. (An explanatory note is contained in Appendix III.) On the abolition of the 1926 deductions generally it would therefore seem reasonable, if discrimination against water undertakings is to be avoided, to introduce some other adjustment in place of the 20 per cent. deduction from what is now regarded as the gross annual value. We suggest in paragraph 36 below a 50 per cent. deduction from the part of the net annual value of the undertaking which relates to trunk mains. It would seem from the figures set out in paragraph 29 below that such a deduction would be equivalent, taking Scotland as a whole, to 12 per cent. of the net annual value of all water undertakings. This might, we think, reasonably be regarded as reflecting that part of the 1926 deductions attributable to the derating of underground pipes. We therefore recommend that all undertakings should be treated as non-profit-earning, and that a deduction from the net annual value of trunk mains should be introduced on the withdrawal, in accordance with the recommendations of the Sorn Committee, of the present deduction from the gross annual value of the whole undertaking.

(b) DEDUCTIONS IN RESPECT OF CONTRIBUTIONS TO RESERVE FUNDS

16. We understand that not all water authorities have taken statutory powers to operate reserve funds. Such funds can, however, play an important part in keeping water rates and charges stable, and the fact that in arriving at valuations under the revenue principle no deduction from gross revenue is allowed in respect of sums set aside for reserve must operate to discourage their establishment. Sums put to reserve do not reflect any physical change in the undertaking and it appears to us that they arise only from the needs and enterprise of the tenant and should not be regarded as part of the hypothetical rent and as such be reflected in the valuation. We therefore think it both reasonable and in accordance with the true intent of the valuation principles to recommend that sums transferred to a reserve fund for trading purposes should be allowed as a deduction from revenue. On the other hand, it seems to us that account should be taken in arriving at the valuation of sums expended from reserve, which would presumably be transferred to revenue account for this purpose. Only payments to a reserve fund for trading purposes should be deducted; payments to a reserve fund for capital purposes should not be allowed as a deduction.

(c) DEDUCTIONS IN RESPECT OF POST-WAR EXPENDITURE

17. It has been suggested to us that it is unfair that there should be steep disparities between the valuations of undertakings which have had to incur capital expenditure at high costs since the war and others whose installations were all provided before the war, and that even within one undertaking the apportionment of value as between parts in different rating areas may be distorted by the accidental distribution of new works at high capital costs. (We discuss apportionment in paragraphs 30-37 below.) It has also been observed that inflated structural costs are reflected more quickly in valuations arrived at by the revenue principle than in valuations arrived at by other methods. Water undertakings are valued yearly and capital expenditure is generally reflected in

the valuation in the year after that in which it is incurred, but the valuations of other properties are not reviewed so frequently. We have, therefore, investigated the possibility of introducing some special deduction or reduction factor to mitigate the effect on valuation of high post-war costs.

18. The Assessor of Public Undertakings put before us a means of doing this. He suggested that after the gross and net annual values of an undertaking have been arrived at on existing principles, a special deduction at a fixed percentage should be allowed on that part of the net annual value which is attributable to post-war expenditure, which might be defined for this purpose as expenditure incurred after 1938-39. It is estimated that post-war capital costs are approximately three times the level of those in the pre-war period and if it were desired to offset the whole of the resulting inflation, the special deduction would be at the rate of 66⅔ per cent. So high a deduction would, however, eliminate the element of contemporary costs stressed by the Sorn Committee and clearly, if such a deduction were introduced, the percentage and probably the basic year by reference to which it was paid would require to be reviewed from time to time. In considering this suggestion we have had regard to the proposal recently made by the Secretary of State that on the abolition of owners' rates valuations generally should be frozen for a period of five years during which valuations on the new principles would be worked out. If this suggestion is extended to waterworks any modifications of the revenue principle would not therefore be effective until 1960-61 or 1961-62. By then all other valuations will have been brought up-to-date on the new principles of valuation. The disparity would be still further reduced if waterworks, like other subjects, were revalued every five years instead of annually as at present. The need for a post-war allowance to remove disparities between water undertakings and other kinds of property should therefore be greatly reduced, and the lapse of time since prices began to be inflated early in the war will be much greater. We therefore do not see our way to recommend the introduction (with effect in five or six years' time) of an allowance for post-war expenditure in the determination of the *cumulo* value of water undertakings under the revenue principle. We think, however, that the introduction of a reducing factor for such expenditure into the apportionment of the *cumulo* on structural costs would mitigate one of its adverse features. We return to this suggestion in paragraph 33.

(d) CUMULO VALUATION FOR ALL WATERWORKS IN SCOTLAND

19. The Assessor of Public Undertakings has also made a further suggestion that all waterworks in Scotland might be valued together as one unit on the revenue principle: the national *cumulo* would then be apportioned to individual undertakings on structural costs or on some other basis. The advantages of this method would be that there would be no prospect of nil valuations, that violent fluctuations in values would be avoided and that disparities between undertakings as a result of the provision of installations at post-war costs would be reduced. The probable effect of the proposal is illustrated by the fact that, while there have been substantial variations in the gross annual values of some individual undertakings valued by the Public Assessor (in three cases the highest values are respectively nine, seven and five times the lowest values), the total valuation of all these undertakings for the years from 1932-33 to 1954-55 has remained comparatively steady; the total valuations are shown in the appended table (Appendix IV). Further stability in the *cumulo* could be obtained if, instead of annual valuation based on a three years' average, either quinquennial revaluation with an annual re-allocation of the *cumulo* or annual valuation with a five years' average were adopted.

20. The combination of a national *cumulo* and the modifications of the revenue principle outlined above might go some way to meet some of the criticisms of the principle. If a deduction for post-war costs is allowed in arriving at a national

cumulo a similar deduction might be made from the structural costs of each undertaking's works so as to prevent an unduly high value being apportioned to any undertaking which may require to carry out new works at present-day high costs. On the face of it this suggestion has much to commend it but there are objections and practical difficulties which in our view outweigh its apparent advantages. For example, if this proposal were adopted, the valuation of one undertaking would be affected not only by the structural costs of other undertakings, which, as we discuss below in relation to the "norm" method, we consider would be quite desirable as a means of averaging costs, but also by their running expenses, which depend very largely on skill and efficiency in management and should not affect the hypothetical rent. There are at present about two hundred separate water undertakings in Scotland and this method of valuation would necessitate the preparation of a consolidated statement for them all, which would have to be made available to the individual undertakers and to local authorities for purposes of appeal. After careful consideration we do not recommend a *cumulo* valuation on the revenue principle of all water undertakings in Scotland.

Modified Contractor's Principle

21. One suggestion which, we understand, was put before the Sorn Committee was that waterworks might be valued on a modified form of the contractor's principle which excluded the value of obsolete and ineffective plant. This proposal, however, has the same defects as are briefly referred to above, that is to say, it would not deal with the difficulty of the wide divergence between present-day and pre-war capital costs or with the problem of the great differences resulting from geographical and other circumstances in the capital costs of undertakings with the same output. We have considered this suggestion but we cannot recommend it as a method of valuing waterworks in Scotland.

The "Norm" Method

22. The method which the Sorn Committee suggested should be further investigated—and which we have therefore studied very fully—is a modified form of the contractor's principle which would relate value to output and to the capital cost to date of all works at present in use in Scotland. The average capital cost of providing a unit of, say, 1,000 gallons of water per day would be taken as a norm which would be multiplied by the number of units supplied by each undertaking in order to arrive at the capital value of that undertaking's works. Annual value would then be obtained by applying to this capital value an appropriate percentage according to the contractor's method. One effect of this proposal would be to eliminate disparities between one undertaking and another resulting from the different circumstances in which their works were constructed.

23. To enable us to study this suggestion further, the Scottish Home Department obtained information from as many local water authorities and joint boards as could supply it (the majority of important undertakings), including the capital cost, rateable value and potential output of, and the quantity of water actually supplied by, their undertakings, together with particulars of the population receiving domestic supplies and the rateable value of premises liable to the domestic water rate. The information collected was partly estimated but appeared to us to be sufficient to give a reasonably accurate picture of the effect of a scheme on the proposed lines.

24. Two norms were calculated—

(a) the average capital cost involved in providing a potential supply of 1,000 gallons of water a day; and

(b) the average capital cost related to the actual supply of 1,000 gallons of water a day in 1954.

The norms so ascertained are £123·170 and £145·704 respectively. In the appended table (Appendix V) there are shown—

(1) the rateable value for 1954–55 of each undertaking which was able to supply suitable information in time for the calculation of the norm ;

(2) its estimated rateable value using the norm for potential supply multiplied by the number of units of potential supply ;

(3) its estimated rateable value using the norm for actual supply multiplied by the number of units of actual supply ; and

(4) its estimated rateable value using the norm for potential supply multiplied by the number of units of actual supply.

The estimated rateable values were arrived at by taking 3 per cent. of the notional capital value of each undertaking to give the gross annual value and then making the deduction of 20 per cent. under the Rating (Scotland) Act, 1926, to give the net annual and rateable value. Having regard to the exceptionally long life of reservoirs and trunk mains we consider that 3 per cent. is an appropriate percentage to take in applying the contractor's principle to water-works. The addition to, or the deduction from the percentage used, of $\frac{1}{4}$ per cent. would make a difference of about £100,000 to the total rateable value. No adjustment has been made in the figures in Appendix V in respect of bulk supplies given by one authority to another. The valuations shown in columns 4 and 5 would fall to be increased for authorities giving bulk supplies and correspondingly reduced for authorities receiving the bulk supply. This question is discussed further in paragraphs 28 and 29.

25. We have considered whether, if a method of this kind were adopted, actual or potential supply should be the basis for arriving at the values of the individual undertakings. Figures relating to potential supply are necessarily estimated, and moreover are somewhat conjectural in cases where an undertaking is not self-contained but relies partly or wholly on bulk supplies obtained from another undertaking. All the larger undertakings meter their output and accurate figures of actual supplies are, therefore, available for them. Where supplies are not metered the water engineers among our number are satisfied that a fair estimate of actual supplies could be made, taking account of the number and nature of the premises supplied. It is true that actual supply varies from year to year ; fluctuations in the value arising from this fact could be reduced by taking the average supply over a period of, say, five years.

26. We have reached the conclusion that the " norm " method suggested by the Sorn Committee would be practicable. If it is adopted we would suggest that the " norm " to be used should be based on *potential* supply—that is to say, the aggregate structural costs of all undertakings divided by the total potential supply as certified from time to time by the Secretary of State ; but that the valuation of each individual undertaking should be obtained by multiplying the norm so calculated by the amount of water *actually* supplied or deemed to be supplied (paragraph 24 (4) above). The effect of the method over Scotland as a whole, applying the 3 per cent. factor and assuming no general change in levels of valuation, would be to discount unremunerative expenditure incurred in providing for a potential supply in excess of actual demand. Such a scheme would avoid many features to which objection has been taken in the operation of the revenue principle. Valuation would not vary from undertaking to undertaking according to the availability of sources of supply and the distance to be covered by trunk mains and distribution pipes : the value of any particular undertaking would be determined by output, which we think is a much truer measure than capital expenditure or outstanding loan debt of the rent which a hypothetical tenant would pay. It will be observed, of course, that the " norm " method produces valuations and apportionments which differ widely from those arrived at on present principles, and that the changes which would result from introducing it would operate in different directions for different undertakings

and different rating authorities. There is no uniform tendency such as would be produced by introducing modifications into the operation of the existing method. This disparity in the changes it would produce is, in our view, a measure of the faults, not of the "norm" method, but of the revenue principle. We appreciate, however, that some difficulties might attend the initiation of a scheme which, although it would impose about the same burden of rates on water undertakings as a whole, involves so many local changes.

27. The method would appear to require a combination of central and local administration. The norm, and the standard proportions thereof which we discuss in paragraphs 34 and 35 below, might most suitably be certified centrally, presumably at intervals of five years if quinquennial valuation is adopted for other subjects, and communicated to the local water authorities and the assessors. The local assessors would then be able to determine the *cumulo* valuation of the undertakings and apportion them to separately rated areas. The five-yearly adjustment of the norm would take account of the installation of new works and the withdrawal of old ones from service and also of increases in the potential supply. In this way excessive post-war costs would be spread and the general level of the valuations of waterworks would be fairly adjusted to reflect current costs. The method would be almost entirely arithmetical and its only feature which allows scope for variation or judgment is the percentage to be applied to the aggregate structural cost to arrive at the norm. In the first instance it might be appropriate for the percentage, together with the rest of the method, to be prescribed by statute, but in the course of time circumstances would arise in which some variation would be appropriate. The percentage would especially require review in the event of other properties being revalued on new principles as recommended in the Sorn Report. It could be provided that the review of the percentage should be carried out by the Secretary of State in consultation with the authorities concerned and given effect by statutory instrument. This would take the scheme out of the normal processes of valuation; and though it would have some features in common with the payments under Part V of the Local Government Act, 1948, or the new scheme for the payment of rates by Gas Boards in England and Wales, it would avoid the criticisms which the Sorn Committee made of those systems. We think that this would be a reasonable arrangement. Alternatively, if it were desired that the method should remain as an extension of the contractor's principle, it could be provided that the percentage should be varied, at not less than five-yearly intervals, by the Assessor of Public Undertakings. The determination of the norm would under this arrangement be a matter of professional judgment in the light of the valuations of properties generally, current rates of interest and other economic circumstances, and the Assessor's percentage might be appealed against by any interested party and would thus be subject to the guidance of the Court. If this procedure were adopted it would be necessary to provide that any alteration of the percentage on appeal should apply to all other valuations calculated by reference to it; any appeal might therefore affect the interests of all other water and rating authorities and they would presumably require to be given a right to make representations on it to the Court.

28. If valuation is based on supply, special provision would be necessary in those cases where water is supplied in bulk by one water authority to another; this applies with special force to undertakings such as the Daer Water Board, which exists solely to give bulk supplies to its constituent authorities and thus supplies no water at all to actual consumers. Clearly, a bulk supply must not be assessed twice; but it seems appropriate that the valuation attributable to it on this method of assessment should be divided between the giving and the receiving undertakings since each contributes to the final delivery of the water.

29. We have given considerable thought to ways in which this division could equitably be made and it seems to us that a convenient method could be based on the principle of allocating a value based on average costs to each of the

four parts into which most water undertakings are divided, in the same way as, under this scheme, the *cumulo* value is based on average costs. The four parts and the proportions which their capital cost bears to the total cost of water works, taking an average over the whole of Scotland of the latest figures available, are:—

(a) works at sources (including reservoirs, intakes, etc.)	... ..	29 per cent.
(b) transmission (trunk mains)	... ..	23 per cent.
(c) treatment (including filters, clear water storage tanks at filters and other associated works)	... ..	12 per cent.
(d) distribution (including distributing mains and balancing storage)	... ..	36 per cent.

An analysis of these proportions is given in Appendix VI. By applying them valuation attributable to bulk supplies may be fairly allocated in a very simple way of which we give examples in Appendix VII, which should be read together with paragraph 35 below, in which we discuss the use of the same method in connection with the apportionment of *cumulo* values to separately rated areas.

Apportionment of the Cumulo to Separately Rated Areas

30. The present Scottish method of allocating the *cumulo* value of a water undertaking on the basis of structural costs to the different rating areas in which the undertaking may be situated is discussed in paragraph 114 of the Sorn Committee's report. The method is criticised mainly in two respects. Firstly, when new works are constructed valuation is at once attracted away from the other parts of the undertaking. Thus the extension of the distribution system to supply a new housing scheme takes valuation away from the trunk mains and the reservoirs at the very time when extra water is being drawn from the reservoir. If at a later date a new reservoir is constructed, the process is sharply reversed. When the new work is carried out at present-day high costs the effect on the rates may be most marked and hard for the ratepayers to understand, especially when the new work is in a different rating area. Secondly, it is suggested that too much of the value is placed on trunk mains and reservoirs and too little on the distribution system. With these criticisms in mind, we have considered the possibility of adopting some modified or different formula.

31. The Valuation Department of the Board of Inland Revenue were good enough to supply us with information about the method of apportionment used in England and Wales. The principle behind the English system is that every water undertaking may be divided into the so-called indirectly productive portion (that is, the reservoirs, pumping stations, trunk mains and all ancillary works) and the directly productive portion (which comprises the pipes which deliver water to the consumers and are thus directly productive of revenue). The method is briefly:—

(a) The annual value of the indirectly productive parts in each rating area is taken as an appropriate percentage of the effective capital value of the works (the contractor's principle).

(b) The balance of the *cumulo* value, representing the annual value of the directly productive parts, is divided among the separate rating areas in proportion to the gross receipts of the undertaking in these areas.

A more detailed explanation of the English system is given in Appendix VIII.

32. Where the whole of the directly productive portion of a water undertaking lies in one rating area, as is quite common in the case of a burgh's waterworks, we doubt whether the proportion of value which would be allocated to it under the English method would differ materially from that now allocated in Scotland. It is true that the anomaly as between parts of an undertaking built at different

periods would be removed if it were practicable to use effective capital value as in England instead of structural costs; but the principles on which effective capital value is ascertained are not easy to grasp. On the whole we think that the English method contains complications which make it unsuitable for incorporation in the Scottish system.

33. If the revenue principle is retained we think it would be reasonable to continue also the Scottish method of using structural costs for apportioning the *cumulo*, with two modifications :—

(1) As discussed in paragraph 18 above, we think that a deduction from post-war expenditure could suitably be introduced into the apportionment. We suggest that this should be done by abating by one-half all expenditure since 1938–39 which is included in the structural costs as ascertained for purposes of apportionment and allocating the *cumulo* to separately rated areas proportionately to the costs as so abated. This would go some way to answer the first criticism quoted in paragraph 30. As observed in paragraph 18, provision would require to be made for the percentage and the standard year to be reviewed from time to time.

(2) The rateable value of trunk mains should be halved (over and above any reduction for post-war expenditure) as suggested in paragraph 36 below. This answers at least in part the second criticism quoted in paragraph 30.

The effect on the *cumulo* valuations and apportionment of the undertakings valued by the Assessor of Public Undertakings of treating them all as non-profit-earning, discontinuing the 20 per cent. deduction under the Rating (Scotland) Act, 1926 (as suggested in paragraphs 14 and 16), and of these two deductions on apportionment, is set out in Appendix IX. (It will be observed from the note to the Appendix that these undertakings have not made payments to trading reserve for many years.)

34. If, however, the *cumulo* is to be fixed by reference to average costs on the “norm” method we think that it would be reasonable to adopt a system of apportionment based on the average costs of the four parts of waterworks to which we refer in paragraph 29 above. On the basis of the percentages there quoted we suggest that the *cumulo* valuation of each individual undertaking should be apportioned as to 29 per cent. to works at sources, 23 per cent. to transmission, 12 per cent. to treatment and 36 per cent. to distribution. We have considered whether there should be separate proportions for different classes of undertaking but we think that it is difficult to justify such a distinction and that the averages to be used should relate to the whole of Scotland. As Appendix VI shows, the proportions vary considerably for each class of undertaking. There are various reasons for this; for example, in the case of the water boards the percentage attributable to distribution is unduly low because of the inclusion of the Dair Water Board which does not distribute water directly to consumers.

35. For many undertakings it would next be necessary to apportion the valuation, thus arrived at, of the four principal parts of the undertaking between the separately rated areas in which each part may be situated. We have considered various suggestions for this apportionment but we think that the following proposals are the most suitable and the easiest to apply :—

(a) Works at Sources—

The allocation of value should be in proportion to the usable capacity (including capacity required to provide compensation water) of each reservoir where there are several, and where a single reservoir lies in more than one separately rated area according to the surface area in each.

As regards compensation water we consider that, although the *cumulo* valuation of an undertaking should be based on actual supply, it is appropriate that reservoirs used to provide compensation water should be included in source works for apportionment purposes.

Although some reservoirs may be fed mainly from other reservoirs and only partly from independent sources, they should nevertheless be treated as part of the source works.

(b) Transmission—

The allocation of value should be in proportion to the internal cubic capacity of the pipes or aqueducts. We recognise that a simple measurement of this kind takes no account of various factors which affect the capacity of pipes to transmit water; there are complicated formulæ used by engineers to take account of these factors but we consider that, by and large, equally fair results will be obtained by a simple measurement of the cubic capacity of the mains. We suggest that cubic capacity should be measured in terms of length in miles multiplied in the case of pipes by the square of the internal diameter expressed in inches. The measurement of aqueducts (which we understand have been built only by the Edinburgh and Glasgow undertakings) is more difficult. We have considered four alternative methods, which are illustrated in the Edinburgh table in Appendix X. It appears likely that aqueducts are constructed of a size much in excess of immediate needs with consequential unremunerative expenditure, and we therefore suggest that the most equitable manner of apportioning values attributable to them would be by a method similar to method C used in this table. Under this method the cubic capacity is measured by reference to length multiplied by the square of the diameter of two pipes of the size estimated to be required to carry the same quantity of water as the aqueduct. This method has the merit that, in the event of the aqueduct being used to a greater extent, it might attract a correspondingly greater proportion of rateable value.

Trunk mains should be defined as extending from the impounding reservoirs or intakes down to the filters or service reservoirs, whichever may be the lower. This means that a trunk main will not cease to be included in the transmission works if supplies are given off for distribution to, say, individual farms or small communities before the principal distribution area is reached. This proposal may result in no value being allocated to a main leading for some distance from the filtration plant to the distribution area but this is unlikely to matter as this section of the main will probably lie partly in the same area as the filters and partly in an area which receives value for distribution works.

(c) Treatment—

The value should be allocated to the several filters and associated works in proportion to the capacity of the filters measured in gallons per day.

(d) Distribution—

The value should be apportioned on the basis of the receipts for water supplied in each separately rated area derived from (i) sums levied or requisitioned in respect of water rates and (ii) other water charges. We also considered the possibility of apportionment on (a) the amount of water actually supplied, (b) the rateable value for purposes of the domestic water rate or (c) population. We discarded these suggestions because, as regards (a), the amount of water supplied would often not be known and, as regards (b) and (c), proper account would not be taken of large supplies to industry in some areas.

Tables illustrating the application to nine water undertakings of different classes of the proposed method of apportionment, so far as regards burghs and the landward areas of counties as a whole, are contained in Appendix X.

Trunk Mains

36. The suggestion that trunk mains receive too high a share of the *cumulo*, to which we have referred in paragraph 30, raises controversial questions of principle. It has been represented that underground trunk mains enjoy little or no benefit from local government services; that they do not prevent the use for other purposes of the ground through which they pass; and that, since supplies are often given off, they enhance the value of premises in the area and thus are in effect doubly rated. From the point of view of the undertaking, it seems to us that trunk mains are a liability rather than an asset, that they are not directly productive of profit and that they should not fully enter into the estimation of the rent which a tenant would pay for a water undertaking. The existence of long or short mains is accidental and a hypothetical tenant with a free choice would no doubt offer less for an undertaking with very long mains which would be a burden to him. Although some trunk mains are tapped to supply, say, nearby farms this does not give an economic return and does not alter the general argument that they are a liability rather than an asset. It would also appear that, as explained in paragraph 15 and Appendix III, there was an early practice of reducing the rateable value of underground pipes in burghs which may be regarded as surviving in the 20 per cent. deduction from the gross annual value of water undertakings under the Rating (Scotland) Act, 1926. After full consideration we have reached the conclusion that if the revenue principle is retained it would be reasonable to abate the value apportioned to trunk mains by one-half. This reduction of value would be in addition to any deduction for post-war costs which might be introduced into the apportionment as suggested in paragraph 33 above. The apportionment, as so modified, would result in the fixing of a net annual value for each separate part of the undertaking. We think that effect could suitably be given to our present proposal by providing that a separate net annual value shall be apportioned to trunk mains and that their rateable value should be one-half of the net annual value.

37. If, on the other hand, the "norm" method is adopted, we think that the averaging of costs would remove the anomaly that excessively long mains receive an unduly high valuation and that there would, therefore, be no case for reducing their value.

Reservoirs

38. It has also been pointed out that there are wide differences between the expense to which various undertakings have been put in providing headworks. Two have intakes from rivers, some draw supplies from natural lochs, others tap catchment areas without impounding reservoirs, but many have constructed reservoirs at varying costs. It can be argued that these differences in cost, arising as they do from accidents of geography, are comparable to the differences in the length of trunk mains required to bring water to the area of consumption and should not be fully reflected in valuation. It has therefore been suggested that the value of impounding reservoirs should be reduced and that it should perhaps not exceed the value of the land for agricultural purposes. On the other hand, it has been observed that reservoirs differ from trunk mains; there are some undertakings which require little or no trunk mains, but every undertaking must have its source of supply and it is this which gives it its value. We have examined this question at some length; the water engineers among our number remain of the opinion that there are adequate grounds for some deduction, but the working party as a whole do not feel justified in recommending that the value of reservoirs should be scaled down.

Owners' Rates

39. All our estimates of the effect of the various suggestions have been made on the basis of the existing law, that is, standing owners' rates. The abolition

of owners' rates would not in itself change the incidence of rates on waterworks, because the rise to be expected in rate poundages would be offset by the fall in annual value resulting from the elimination of the element representing owners' rates. We have, however, considered what adjustments would require to be made in the alternative suggestions for the future valuation of waterworks discussed in this report in order to secure a suitable abatement of value on the abolition of owners' rates. Our conclusions are as follows:—

(a) If the revenue principle is retained the element of owners' rates at present left in the valuation would, when owners' rates are abolished, be dropped automatically by allowing all rates, instead of only the proportion now levied on occupiers, as a deduction from revenue in arriving at net annual value.

(b) If the "norm" method is adopted it will be necessary to reduce the percentage to be applied on the contractor's principle in order to produce the same effect. The question when such a reduction would require to be made leads to further consideration of the proposal to freeze valuations generally on the abolition of owners' rates to which we have referred in paragraph 18 above.

Freezing of Valuations and Introduction of New Arrangements

40. We understand that the Secretary of State's proposal to freeze valuations for a period of five years on the abolition of owners' rates is likely to be generally acceptable and that the Gas Working Party are proposing that it should be extended to the Scottish Gas Board's undertaking. This appears to be a matter in which all rateable lands and heritages should be treated alike, and if all other valuations are to be frozen, at either the 16th May, 1956, or the 16th May, 1957, according to the progress made with amending legislation and the preparations for a new system of valuation, we think that the valuation of waterworks should also be frozen at the same date. The freezing, we think, should apply not only to the *cumulo* values but also to the existing apportionment between rating areas. This would not be the case for other properties (except gasworks), and would be inconsistent with the eventual arrangements for valuing waterworks, under which we contemplate that (whichever of the two methods we suggest is adopted) the apportionment might be adjusted year by year although the *cumulo* would be revalued only every five years. We think, however, that during the interim period before the introduction either of a revised profits method or of an entirely new principle, freezing the apportionment as well as the *cumulo* would be to the convenience of all parties. It would indeed mean that the creation of new physical assets would be ignored for valuation purposes for the time being. But if this were not done there would be a risk of substantial changes of valuation of parts of water undertakings in opposite directions within a few years. This is the contingency which the freezing proposal is designed to prevent as regards valuations generally. Consideration would no doubt be given, in the event of any change in local government boundaries during the interim period, to such adjustment of the frozen apportionment as might be appropriate.

41. At the end of the interim period, in the year when the revaluation of other subjects on the revised principles is completed, the new method of valuing waterworks would be introduced. If it is decided to retain a modified revenue principle we believe that the modifications we have suggested will be suitable for introduction in 1960–61 or 1961–62. If the "norm" method is preferred, two adjustments of the method as set out in this report will probably require to be provided for. In the first place, as observed in paragraph 39 above, the percentage of 3 per cent. will require to be adjusted as a result of the abolition of owners' rates and perhaps also in the light of other circumstances. Provision would therefore require to be made in any legislation introducing the scheme

for the central authority which is to be responsible for adjusting the percentage from time to time (as discussed in paragraph 27 above) to prescribe the percentage to be applied in the initial period beginning in 1960-61 or 1961-62. This would no doubt be done after consultation with the parties concerned in the light, among other factors, of the change in the general level of valuations expected to result from the introduction of new values worked out on new principles in place of the frozen values. The starting point might be the suggestion which we make in paragraph 24 that in present circumstances 3 per cent. would be a suitable factor.

42. Secondly, further consideration might appropriately be given at the end of the interim period to the use of a 20 per cent. deduction, as now laid down in the Rating (Scotland) Act, 1926, to arrive at net annual value under the "norm" method. It is appropriate that the method should arrive at a net value, and we have used the 20 per cent. deduction by way of illustration as being the deduction already used in the valuation of waterworks. It may be seen, however, from the summary at the end of Appendix V, that as a result of applying a norm for potential supply to the actual supply of each undertaking, a net annual value is brought out which is about 33 per cent. less than the existing gross annual value. (Proposed net annual value, £993,148; present net annual value, £1,196,484; present gross annual value, £1,495,605). As we have observed in paragraph 14, under the new system the 1926 deductions will be abolished and the net annual values of other properties to which they apply will be estimated direct. It would be consistent with this proposal that the deduction to arrive at net annual value should be absorbed into the percentage to be applied to the notional capital value of each undertaking. But whether the deduction is kept as a separate step in the calculation or not, it would seem that the question of the appropriate percentage will require to be considered. For this purpose it may be necessary to examine, towards the end of the period of freezing, how the estimation of net annual value direct, in lieu of the 1926 deductions, has worked out for other subjects.

Conclusions

43. We suggest that the following conclusions might be considered further :—

(i) It would be practicable to amend the present method of valuing waterworks on the revenue principle as follows :—

(a) All undertakings should be treated alike as non-profit-earning, in which event actual expenditure on landlord's renewals would be allowed as a deduction from gross revenue (paragraph 15).

(b) The value so arrived at would be a net annual value and the 20 per cent. deduction under the Rating (Scotland) Act, 1926, would require to be discontinued; this would be in accordance with a general recommendation of the Sorn Committee (paragraph 15).

(c) A deduction should be allowed for payments to trading reserve (paragraph 16).

(d) The apportionment might be adjusted by (1) abating structural costs by one-half of post-war expenditure (paragraphs 18 and 33) and (2) halving the rateable value of trunk mains in addition to any such abatement (paragraphs 33 and 36).

(ii) It would also be practicable to introduce the "norm" method suggested by the Sorn Committee as a means both of ascertaining the *cumulo* value of water undertakings and of apportioning the *cumulo* among the rating areas in which it is situated (paragraphs 24, 28, 29, 34 and 35). The scheme would avoid many of the features of the revenue system to which objection has been taken, but would result in considerable disturbance of existing valuations and apportionments (paragraph 26).

(iii) We cannot recommend any other amendments of the revenue principle, or any alternative methods of valuation, as likely to effect practical improvements in the valuation of waterworks.

(iv) Under the "norm" method the percentage to be applied to the notional capital value of undertakings would require to be reviewed periodically by a central authority. It would be reasonable to place this responsibility on the Secretary of State, who should be required to consult the water authorities and rating authorities concerned (paragraph 27).

(v) Whatever the scheme that may be decided upon for the future valuation of waterworks, it would seem appropriate, if valuations generally are frozen for an interim period of five years on the abolition of owners' rates, to freeze water valuations also, both *cumulo* and apportionment (paragraph 40).

(vi) In this event the alternative arrangements suggested under paragraphs (i) and (ii) above would not come into effect until 1960-61 or 1961-62, and if the "norm" method were to be adopted provision would require to be made for the Secretary of State to determine the percentage to be applied to notional capital value and the deduction to arrive at net annual value in the light of circumstances arising out of the revaluation of other subjects on new principles (paragraphs 41 and 42).

44. The Working Party wish to record their indebtedness to the officials of the Scottish Home Department and others who prepared the tables and other material for their consideration and thereby greatly facilitated their enquiry.

Signed on behalf of the Working Party,

A. J. AGLEN,
Chairman.

10th August, 1955.

APPENDIX I

(see paragraph 5)

The Revenue Principle of Valuation as Applied to Waterworks in Scotland

1. Under the Valuation Acts the annual value of lands and heritages is normally the rent passing, but where there is no lease the assessor must estimate the rent which a hypothetical tenant might be expected to pay for the property. In the case of monopoly or quasi-monopoly undertakings occupying lands and heritages for the conduct of their business the assessors' established practice is to ascertain such rent by applying what is known as the revenue principle, or profits method, to the valuation of the lands and heritages. This practice has been endorsed by decisions of the Lands Valuation Appeal Court; it bases the valuation upon the revenue earned by the undertaking which occupies the property.

2. The revenue principle is applied to waterworks, other than waterworks valued by the Assessor of Public Undertakings, as follows. The amount of the gross revenue in the latest year is first ascertained. From this are deducted:—

(a) the expenses of earning the revenue, that is to say, all working charges—this gives the net revenue for the valuation year—and

(b) allowances for (i) the interest on the capital employed by the tenant in providing the moveable plant (which is in effect an allowance for depreciation of such plant) and (ii) the interest on the floating capital needed to run the undertaking.

3. For the purpose of these deductions a distinction is made between profit-earning and non-profit-earning undertakings. Most water undertakings in Scotland are strictly non-profit-earning since they are statutorily debarred from earning more than they require to enable them to pay their way. Some, however, have authority under local Acts to set aside reserves and for this reason are technically regarded as profit earning. In the case of the non-profit-earning undertakings the deduction for working charges includes all repairs, including renewals of pipes, etc., and both landlord's and tenant's maintenance. In the case of the undertakings regarded as profit earning the deduction does not include the landlord's repairs and renewals, but an allowance of 15–20 per cent. in name of profits is given from the balance of the net revenue after deducting the tenant's capital allowances.

4. The amount remaining after these deductions is taken to be the rent which a tenant might be expected to pay for the occupation of the premises, namely, its gross annual value. In order to avoid wide fluctuations in value it is the practice to average the gross annual value so calculated with the gross annual values for the preceding two or four years. Finally, in accordance with the provisions of the Rating (Scotland) Act, 1926, 20 per cent. is deducted from the gross annual value to arrive at the net annual and rateable value.

5. The following is a skeleton statement illustrating how the revenue or profits method works:—

GROSS REVENUE	...	...	...	...	...	£
<i>Deduct WORKING CHARGES, ETC. (including cost of collecting water and distribution, management expenses and occupier's rates)</i>	...	...	...	...	...	£
NET REVENUE	...	...	...	...	...	£
<i>Deduct TENANT'S CAPITAL ALLOWANCES:</i>						
Interest on Working Capital	...	£				
Interest on Tenant's Plant	...	£				
						£
						£
<i>Deduct in case of profit earning undertakings 15–20 per cent. allowance for profits</i>	...	...	...	...	...	£

GROSS ANNUAL VALUE BEFORE AVERAGE ...	...	£
Gross Annual Value for previous year ...	...	£
Gross Annual Value for year preceding that ...	...	£
<hr/>		
<i>Divide by three to obtain GROSS ANNUAL VALUE</i> ...	£	
<i>Deduct 20 per cent. under Rating (Scotland) Act, 1926</i> ...	£	
<hr/>		
NET ANNUAL AND RATEABLE VALUE ...	...	£
<hr/>		

6. The procedure used by the Assessor of Public Undertakings in valuing waterworks differs slightly from that described above in that it is the net revenue for the year which is averaged with the net revenue for the preceding two years. To obtain the gross annual value for the year there is then deducted from this average net revenue the tenant's capital allowances for the year of valuation, that is to say, these allowances are not also averaged.

7. It is an essential feature of the revenue principle as applied to public utility undertakings that it should be applied consistently. Only in very exceptional circumstances has the Court authorised any reduction in values arrived at by this method. This feature may be compared with the working of the contractor's method under which it is the recognised practice of assessors, accepted by the Court, to compare the valuation arrived at by its application with the values of similar subjects, and, where they see fit, to make suitable adjustments.

8. If an undertaking is situated in more than one separately rated area the valuation for the whole undertaking must be allocated among these areas. The recognised method of apportioning the valuation of a water undertaking is to give each area a share of the total value equal to the proportion which the structural cost of the works in that area bears to the structural cost of the whole undertaking.

APPENDIX II

(see paragraph 8)

The Methods recommended by the Sorn Committee in 1944 for granting Relief from Rating to Hydro-Electric Undertakings

The Cooper Report (Cmd. 6406).*

1. The Cooper Committee had pointed out in 1942 that in the valuation on the revenue principle of an undertaking generating electricity by steam power the very large sums expended annually on coal or other fuel were deducted from receipts, whereas a hydro-electric undertaking had no fuel costs to deduct and was prohibited from deducting any part of the annual charges on its civil engineering works, which are their counterpart. As a result, the annual value of a hydro-electric undertaking was, under the existing law, much higher than that of a steam undertaking with a comparable output. The Cooper Committee recorded the opinion that the case for equating steam and hydro-electric undertakings was unanswerable.

First Sorn Committee's Report (Cmd. 6526).†

2. The first Sorn Committee recommended that relief should be limited to generation works, these and not transmission or distribution lines being the part of a hydro-electric undertaking which gave rise to disproportionately high rating burdens.

3. The Committee suggested three alternative methods of relief:—

- (a) the deduction of an additional 25 per cent. from the gross annual value of the generation works of the undertaking in arriving at their net annual and rateable value,
- (b) the deduction from the undertaking's gross revenue, in calculating its gross annual value, of a sum equal to $3\frac{1}{2}$ per cent. upon the capital expended on its generation works in excess of £30 per kilowatt installed, or
- (c) an adjustment of the valuation of the generation works in accordance with the proportion which £30 per kilowatt installed at the generating stations bore to the actual constructional cost per kilowatt installed.

4. The first method would give the same proportionate relief to all undertakings irrespective of variations in the capital expenditure required for the same output as a result of different natural conditions. The second and third methods, on the other hand, had as their object the relief of a hydro-electric undertaking of its rating liability in respect of that proportion of the constructional works required for a generating scheme which cost more than a fixed capital expenditure per kilowatt of output capacity; both would give proportionately more relief to undertakings whose constructional costs are unduly high for geographical reasons or because of increases in the cost of labour or materials.

Hydro-Electric Undertakings (Valuation for Rating) (Scotland) Act, 1945.

5. The Act of 1945 gave effect to the third method and it operated until the Local Government Act, 1948, took electricity undertakings out of the valuation roll and provided for payments by electricity undertakings for the benefit of local authorities. The main provisions of the 1945 Act were:—

(a) Where the constructional cost of *new* hydro-electric generating works exceeded £30 per kilowatt installed their rateable value was to be reduced in the proportion which £30 bore to the actual cost per kilowatt installed;

(b) the same relief was to apply to *existing* works but in full only when new rateable value equivalent to the amount of the concession had been created by the same or other hydro-electric undertakings in the same county or large burgh;

(c) the working of the relief was to be reviewed periodically and a report made to Parliament;

(d) the number of kilowatts installed at any station was to be conclusively determined by certificate of the Electricity Commissioners;

(e) undertakers other than the North of Scotland Hydro-Electric Board who benefited from the relief were to apply the net gain to the development of their system of distribution or for the benefit of their consumers in accordance with directions given by the Electricity Commissioners.

* H.M.S.O., Price 9d.

† H.M.S.O., Price 4d.

APPENDIX III

(see paragraph 15)

Note on the 20 per cent. Deduction from Gross Annual Value

Before the passing of the Rating (Scotland) Act, 1926, underground gas and water pipes were, together with certain other properties in burghs, assessed for the purpose of various burgh rates on only one-fourth of their full annual value: see, for example, section 347 of the Burgh Police (Scotland) Act, 1892. It was apparently considered that these properties enjoyed less than the normal benefit from the services for which these rates were charged (Royal Commission on Local Taxation, 1896, Final Report for Scotland,* page 7). Under section 37 of the Poor Law (Scotland) Act, 1845, the poor rate was levied on the net annual value, that is, the gross annual value less a deduction for repairs and maintenance. In practice a deduction from the gross annual value of gas and water undertakings was made at a percentage fixed by the parish council, which over Scotland as a whole varied from 5 to 75 per cent. These two forms of deduction from gross annual value, together with other forms of differential rating, were replaced under the 1926 Act by the scale of deductions set out in the First Schedule to that Act, which was intended to produce over the country as a whole the minimum of disturbance in the incidence of rates as between different classes of property (Cmd. 2639*). It can therefore be held that in the case of waterworks and gasworks the 20 per cent. deduction from gross annual value was only partly intended to secure rating on net annual value; in part it preserved the former partial exemption of underground pipes in burghs.

APPENDIX IV

(see paragraph 19)

Statement showing the Total Gross Annual Value for the years 1932-33 to 1954-55 of the Water Undertakings valued by the Assessor of Public Undertakings (Scotland)

Year	Total	Number of Undertakings included	Year	Total	Number of Undertakings included
	£			£	
1932-33	583,361	13	1944-45	555,913	14
1933-34	567,181	13	1945-46	575,223	14
1934-35	559,595	13	1946-47	576,957	14
1935-36	530,930	13	1947-48	571,300	14
1936-37	558,700	14	1948-49	543,669	14
1937-38	540,104	14	1949-50	526,397	14
1938-39	528,251	14	1950-51	505,600	14
1939-40	512,927	14	1951-52	495,326	14
1940-41	512,741	14	1952-53	497,721	15
1941-42	508,650	14	1953-54	542,457	15
1942-43	522,360	14	1954-55	570,122	15
1943-44	538,279	14	—	—	—

NOTE

The undertakings valued by the Assessor are those for the Burghs of Aberdeen, Alloa, Burntisland, Dumfries, Dundee, Dunfermline, Edinburgh, Glasgow, Gourock, Grangemouth, Greenock (from 1936-37), Kirkcaldy, Kirkintilloch, Stranraer (from 1952-53), and Troon. (In 1954-55 the valuation of the Greenock undertaking was £24,268 and that of Stranraer £2,246.)

* H.M.S.O., out of print.

APPENDIX V
(see paragraph 24)

Statement showing the present Rateable Value of each Undertaking and the Estimated Rateable Value if calculated on the New Method suggested by the Sorn Committee

Water Boards (1)	Rateable Value			
	1954-55 (Actual) (2)	Potential Norm × Potential Supply (see Note 1) (3)	Actual Norm × Actual Supply (see Note 2) (4)	Potential Norm × Actual Supply (see Note 3) (5)
Airdrie, Coatbridge and District ...	£ 26,556	£ 15,106	£ 17,862	£ 15,100
Blairgowrie, Rattray and District ...	684	2,956	2,273	1,921
Clydebank and District	9,252	8,985	14,848	12,552
East Lothian	19,279	6,013	10,487	8,865
Irvine and District ...	29,772	25,127	24,083	20,358
The Laich of Moray ...	4,933	4,272	5,053	4,272
Stirlingshire & Falkirk	57,611	47,297	26,360	22,283
Daer	—	41,385	—	—
Joint Water Committees Elie, Earlsferry and St Monance ...	1,063	—	862	729
Kilrenny, Anstruther and Pittenweem ...	2,649	1,182	1,224	1,035
Nairn	19	292	—	—
TOTAL ...	151,818	152,615	103,052	87,115

APPENDIX V (continued)

Counties (1)	Rateable Value			
	1954-55 (Actual) (2)	Potential Norm × Potential Supply (see Note 1) (3)	Actual Norm × Actual Supply (see Note 2) (4)	Potential Norm × Actual Supply (see Note 3) (5)
	£	£	£	£
Aberdeen	15,942	6,450	6,644	5,617
Ayr	58,069	28,035	26,227	22,171
Banff	131	1,070	575	486
Berwick	2,330	4,331	1,667	1,409
Bute	1,553	621	404	341
Dumfries	16,761	8,277	9,333	7,890
Dunbarton	16,138	11,824	8,637	7,302
Fife	70,949	30,595	34,513	29,175
Inverness	1,977	5,498	4,021	3,399
Kincardine	814	1,103	787	665
Kinross	108	739	325	275
Kirkcudbright	1,841	3,349	2,541	2,148
Lanark	105,030	36,360	56,650	47,889
Moray	591	—	619	523
Nairn	577	384	245	207
Peebles	1,895	4,966	901	762
Perth	1,916	3,760	4,196	3,547
Renfrew	37,778	14,780	12,904	10,908
Ross and Cromarty	974	3,252	3,007	2,542
Roxburgh	2,866	928	1,154	976
Selkirk	773	1,478	163	137
Stirling	195	1,239	1,049	887
Sutherland	187	2,673	1,045	883
West Lothian	38,688	12,416	14,687	12,416
Wigtown	2,230	2,956	573	485
TOTAL	380,313	187,084	192,867	163,040

APPENDIX V (continued)

Large Burghs (1)	Rateable Value			
	1954-55 (Actual) (2)	Potential Norm × Potential Supply (see Note 1) (3)	Actual Norm × Actual Supply (see Note 2) (4)	Potential Norm × Actual Supply (see Note 3) (5)
	£	£	£	£
Aberdeen	50,670	44,341	35,424	29,945
Arbroath	1,286	4,564	4,221	3,568
Ayr	12,922	14,780	15,701	13,273
Dumbarton	7,467	5,173	8,550	7,228
Dumfries	16,052	15,076	13,019	11,005
Dundee	39,260	42,922	44,047	37,235
Dunfermline	5,527	5,321	8,543	7,222
Edinburgh	75,627	118,243	119,349	100,891
Glasgow	199,797	276,887	309,350	261,507
Greenock	19,414	49,840	46,796	39,558
Hamilton	5,856	7,074	9,616	8,129
Inverness	3,056	7,981	7,590	6,416
Kilmarnock	10,588	12,120	13,173	11,135
Kirkcaldy	11,957	5,912	8,180	6,915
Motherwell & Wishaw	18,407	12,416	20,992	17,745
Paisley	51,070	48,775	48,184	40,732
Perth	9,120	9,755	9,900	8,369
Port Glasgow	6,839	5,577	6,225	5,262
Stirling	3,805	7,390	8,141	6,882
TOTAL ...	548,720	694,147	737,001	623,017

APPENDIX V (continued)

Small Burghs (1)	Rateable Value			
	1954-55 (Actual) (2)	Potential Norm × Potential Supply (see Note 1) (3)	Actual Norm × Actual Supply (see Note 2) (4)	Potential Norm × Actual Supply (see Note 3) (5)
	£	£	£	£
Aberfeldy	208	266	315	266
Aberlour	140	426	301	254
Alloa	3,536	7,095	6,137	5,188
Annan	1,054	739	699	591
Ardrossan	2,313	2,069	2,682	2,267
Bathgate	347	739	1,843	1,558
Biggar	231	355	420	355
Bo'ness	1,568	4,434	2,825	2,389
Brechin	666	1,375	1,463	1,237
Bridge of Allan	1,028	1,035	1,049	887
Burntisland	1,412	2,513	2,728	2,306
Callander	318	1,035	542	458
Campbeltown	1,206	2,365	1,972	1,667
Coldstream	79	296	350	296
Cove and Kilcreggan	399	296	350	296
Cowdenbeath	5,694	2,956	3,340	2,823
Crieff	951	2,217	1,519	1,284
Cromarty	21	118	140	118
Culross	23	355	63	53
Cumnock & Holmhead	1,256	887	1,049	887
Cupar	4,017	1,478	1,595	1,348
Dalbeattie	218	946	909	769
Darvel	242	887	769	650
Denny and Dunipace	2,571	2,660	2,944	2,489
Doune	214	234	199	168
Dunblane	731	1,478	944	798
Dunoon	1,184	3,695	3,225	2,727
Duns	566	296	332	281
Ellon	243	367	301	254
Eyemouth	456	319	420	355
Forfar	2,456	3,843	3,575	3,022
Forres	815	1,774	1,399	1,182
Fortrose	93	319	350	296
Fort William	784	1,478	1,285	1,086
Fraserburgh	1,306	3,695	3,158	2,669
Galashiels	979	3,695	3,147	2,660
Galston	793	1,182	839	909
Girvan	2,814	5,912	1,558	1,317
Gourock	1,626	2,217	2,025	1,712
Grangemouth	24,073	5,519	25,940	21,928
Hawick	2,912	4,139	250	212
Inverbervie	328	384	231	195
Invergordon	320	1,182	699	591
Inverkeithing	452	—	1,184	1,001
Jedburgh	683	532	546	461
Kelso	2,586	1,182	881	745
Kilsyth	472	2,217	1,818	1,537
Kirkcudbright	884	1,330	729	616

APPENDIX V (continued)

Small Burghs (1)	Rateable Value			
	1954-55 (Actual) (2)	Potential Norm × Potential Supply (see Note 1) (3)	Actual Norm × Actual Supply (see Note 2) (4)	Potential Norm × Actual Supply (see Note 3) (5)
	£	£	£	£
Kirkintilloch ...	561	4,434	2,874	2,430
Kirriemuir ...	452	1,774	1,224	1,035
Lanark ...	538	1,478	2,250	1,902
Langholm ...	129	562	664	562
Largs ...	3,339	2,956	3,340	2,823
Laurencekirk ...	405	281	332	281
Leslie ...	604	754	458	387
Leven ...	2,249	2,217	2,238	1,892
Lochgelly ...	3,281	1,478	1,154	976
Lochgilthead ...	150	222	262	222
Lochmaben ...	25	148	161	136
Lockerbie ...	141	547	577	488
Macduff ...	409	946	979	828
Maybole ...	562	532	863	730
Montrose ...	791	3,399	2,990	2,527
Nairn ...	1,393	1,028	1,049	887
New Galloway ...	146	51	60	51
Newmilns ...	114	828	934	789
North Berwick ...	390	—	1,154	976
Oban ...	194	3,716	3,590	3,035
Peebles ...	2,372	2,365	1,911	1,615
Pitlochry ...	362	1,478	485	410
Prestwick ...	1,818	1,774	2,308	1,951
Queensferry ...	316	—	401	339
Rosehearty ...	417	139	164	139
Rothsay ...	1,718	3,695	3,990	3,373
St Andrews ...	4,190	2,365	2,254	1,905
Sanquhar ...	766	414	490	414
Selkirk ...	1,820	2,365	1,091	922
Stewarton ...	598	739	839	709
Stonehaven ...	349	1,182	1,049	887
Stornoway ...	192	2,660	2,053	1,735
Stranraer ...	1,797	2,365	1,772	1,498
Tillicoultry ...	742	1,035	1,224	1,035
Tobermory ...	45	81	96	81
Troon ...	4,789	5,764	2,976	2,516
Turriff ...	201	709	629	532
TOTAL ...	115,633	141,012	141,924	119,976

SUMMARY

(1)	1954-55 (Actual)	Potential Norm × Potential Supply (see Note 1) (3)	Actual Norm × Actual Supply (see Note 2) (4)	Potential Norm × Actual Supply (see Note 3) (5)
	£	£	£	£
Water Boards ...	151,818	152,615	103,052	87,115
Counties ...	380,313	187,084	192,867	163,040
Large Burghs ...	548,720	694,147	737,001	623,017
Small Burghs ...	115,633	141,012	141,924	119,976
TOTAL (Scotland) ...	1,196,484	1,174,858	1,174,844	993,148

NOTES

1. The estimated rateable values given in column (3) have been calculated, on the basis indicated in paragraph 24 of this report, by using the norm per unit of potential supply multiplied by the number of units of potential output of each undertaking.

2. The estimated rateable values given in column (4) have been calculated by using the norm per unit of actual supply multiplied by the number of units of water actually supplied by each undertaking in 1954.

3. The estimated rateable values given in column (5) have been calculated by using the norm per unit of potential supply multiplied by the number of units of water actually supplied by each undertaking in 1954.

4. No adjustment has been made in the figures in this Appendix in respect of bulk supplies given by one authority to another. The valuations shown in columns (4) and (5) would fall to be increased for authorities giving bulk supplies and correspondingly reduced for authorities receiving the bulk supplies. This question is further discussed in paragraphs 28 and 29 of this report.

APPENDIX VI

(see paragraph 29)

Statement showing the estimated proportion of the Capital Cost of Water Undertakings incurred on (a) Works at Sources, (b) Transmission, (c) Treatment and (d) Distribution (based on the information provided by Water Authorities for the latest year).

Class of Undertaking	Works at Sources	Transmission	Treatment	Distribution
	%	%	%	%
Water Boards ...	48	34	7	11
Counties ...	21	20	8	51
Large Burghs ...	23	21	16	40
Small Burghs ...	35	24	12	29
Scotland ...	29	23	12	36

APPENDIX VII (see paragraph 29)

“ Norm ” Method: Distribution to the Authorities concerned of the Valuation attributable to Bulk Supplies

1. In paragraph 26 of the report it is suggested that the valuation of each undertaking should be ascertained by multiplying the “ norm ” based on potential supply by the amount of water actually supplied to consumers. Where water so supplied is partly obtained by a bulk supply from another undertaking it would be wrong that the whole of the valuation should attach to the distributing undertaking, and it is necessary to apportion part of it to the undertaking giving the bulk supply.

2. The following examples for four hypothetical undertakings illustrate the way in which it is proposed that, under the “ norm ” method of valuing waterworks, the valuation attributable to a bulk supply of water would be divided between the giving and receiving authorities on the basis of the standard Scottish proportions for the capital costs of works at sources, transmission, treatment and distribution (see paragraph 29 of the report).

Town Council of “ A ”

3. The Town Council of “ A ” supply domestic and industrial consumers in the Burgh with 330,000 gallons of water per day. They own a reservoir which gives a daily supply of 180,000 gallons. They filter this supply and they own the trunk mains which transmit this water from the reservoir to the burgh and they also own all the distribution works within the burgh. To augment their own supply the burgh obtain a bulk supply of 150,000 gallons per day from the County Council of “ X ”; this bulk supply is filtered by the county and transmitted to the burgh’s distribution pipes through mains belonging to the county council. The valuation is in the first place calculated on the total supply from both sources as follows :—

Capital value of all works at sources, transmission, treatment and distribution works contributing to the supply of 330,000 gallons :	£
330,000 gallons per day at £123·170 per 1,000 gallons	=40,646
Gross annual value—3 per cent. of £40,646	= 1,219
Net annual and rateable value—£1,219 less 20 per cent. deduction under the Rating (Scotland) Act, 1926	= 975

4. The net annual value will be allocated to the four parts, according to the standard Scottish proportions, as follows :—

	£
Works at Source—29 per cent.	=283
Transmission —23 per cent.	=224
Treatment —12 per cent.	=117
Distribution —36 per cent.	=351

5. All the works for the distribution of the 330,000 gallons belong to the Town Council. The valuations attributable to treatment, transmission and source works, on the other hand, fall to be divided between the Town Council of "A" and the County Council of "X" according to the source from which the water comes, i.e. 180,000 gallons from the Town Council's reservoir and 150,000 gallons bulk supply from the County Council. This apportionment will work out as follows:—

A's share of treatment valuation of £117

$$= \frac{180,000}{330,000} \times £117 = £64$$

X's share of treatment valuation of £117

$$= \frac{150,000}{330,000} \times £117 = £53$$

A's share of transmission valuation of £224

$$= \frac{180,000}{330,000} \times £224 = £122$$

X's share of transmission valuation of £224

$$= \frac{150,000}{330,000} \times £224 = £102$$

A's share of source works valuation of £283

$$= \frac{180,000}{330,000} \times £283 = £154$$

X's share of source works valuation of £283

$$= \frac{150,000}{330,000} \times £283 = £129$$

6. The *cumulo* net annual and rateable value of "A's" undertaking is, therefore, made up as follows:—

	£
(a) Works at Sources	154
(b) Transmission	122
(c) Treatment	64
(d) Distribution	351
Total	£691

"X's" share of the different works is included in their valuation as set out in paragraphs 11 and 12 below.

7. In practice the calculations could be considerably shortened by using a "norm" of rateable value split into four parts.

Norm of capital value per 1,000 gallons per day = £123·170

∴ Gross annual value per 1,000 gallons per day
= 3 per cent. of £123·170 = £3·695

∴ Net annual and rateable value
£3·695 less 20 per cent. deduction under 1926 Act = £2·956

This "norm" of rateable value per 1,000 gallons per day would then be divided as follows:—

(a) Works at Source—29 per cent.	£0·857
(b) Transmission —23 per cent.	£0·680
(c) Treatment —12 per cent.	£0·355
(d) Distribution —36 per cent.	£1·064

8. By multiplying each of these four parts of the "norm" of rateable value by the number of units (if any) of water which are, respectively, drawn from an undertaking's source works, transmitted through its mains, passed through its treatment works and distributed through its distribution system, the rateable value of each part of an undertaking can be ascertained direct. "A's" valuation might therefore be set down thus:—

Part of Undertaking	Supply in Thousands of Gallons per Day		"Norm" of Rateable Value per Thousand Gallons per Day		Rateable Value
			£		£
(a) Works at Source	180	×	0·857	=	154
(b) Transmission	180	×	0·680	=	122
(c) Treatment	180	×	0·355	=	64
(d) Distribution	330	×	1·064	=	351
<i>Cumulo</i> net annual and rateable value of A's waterworks					= <u>691</u>

Town Council of "B"

9. The Town Council of "B" distribute 460,000 gallons per day; they have a reservoir from which they draw 300,000 gallons per day but in addition they own mains leading from a reservoir belonging to the County Council of "X" from which they take a bulk supply of 160,000 gallons per day. The whole supply of 460,000 gallons is treated in filters belonging to the Town Council themselves and is distributed through a distribution system belonging to them. Their valuation may be set out thus:—

Part of Undertaking	Supply in Thousands of Gallons per Day		"Norm" of Rateable Value per Thousand Gallons per Day		Net Annual and Rateable Value
			£		£
(a) Works at Source	300 (disregarding 160 bulk supply from "X's" reservoir)	×	0·857	=	257
(b) Transmission	460	×	0·680	=	313
(c) Treatment	460	×	0·355	=	163
(d) Distribution	460	×	1·064	=	490
<i>Cumulo</i> net annual and rateable value of "B's" waterworks					= <u>£1,223</u>

The valuation of the reservoirs supplying the bulk supply of 160,000 gallons a day ($160 \times £0·857$) falls to be included in the valuation of "X's" source works.

Town Council of "C"

10. The Town Council of "C" do not possess any sources, trunk mains or treatment plant. They distribute 200,000 gallons per day in their burgh; these are delivered to them by the County Council of "X." "C" has, therefore, no valuation for parts (a), (b) and (c); its only valuation is for part (d), distribution works, as follows:—

Thousands of Gallons per Day		"Norm" of Rateable Value		Net Annual and Rateable Value
200	×	£1·064	=	£213

The valuation for source works, transmission and treatment for these 200,000 gallons falls to be included in the appropriate parts of "X's" valuation.

County Council of "X"

11. The County Council of "X," in addition to distributing 7,250,000 gallons per day in their own area, give bulk supplies, as indicated above, to the Town Councils of "A," "B" and "C" amounting to 510,000 gallons per day. Of this 7,760,000 gallons, however, only 7,160,000 gallons are drawn from "X's" own reservoirs; 600,000 gallons are taken as a bulk supply (filtered) from the burgh of "D" through a trunk main belonging to "D." The quantities of water to be applied to the four parts of the "norm" in arriving at "X's" valuation are, therefore, as follows:—

Part of Undertaking	Thousands of Gallons
(a) Source works	7,760
less bulk supply from "D"	600
	<u>7,160</u>
(b) Transmission	7,760
less 600 bulk supply from "D"	
and less 160 bulk supply taken off through "B's"	
mains	760
	<u>7,000</u>
(c) Treatment	7,760
less 160 bulk supply to "B"	
600 bulk supply from "D"	760
	<u>7,000</u>
(d) Distribution	7,760
less 150 bulk supply to "A"	
160 bulk supply to "B"	
200 bulk supply to "C"	510
	<u>7,250</u>

12. The valuation of "X's" undertaking is, therefore, as follows:—

Part of Undertaking	Supply in Thousands of Gallons per Day		"Norm" of Rateable Value per Thousand Gallons per Day		Net Annual and Rateable Value
			£		£
(a) Works at Source	7,160	×	0·857	=	6,136
(b) Transmission	7,000	×	0·680	=	4,760
(c) Treatment	7,000	×	0·355	=	2,485
(d) Distribution	7,250	×	1·064	=	7,714
<i>Cumulo</i> net annual and rateable value of "X's" waterworks					<u>21,095</u>

The source works, transmission and treatment valuation in respect of the bulk supply taken by "X" from "D" would, of course, fall to be included in the appropriate parts of "D's" valuation.

13. Further illustrations of this method of dealing with bulk supplies will be found in the examples of apportionment to separately rated areas given in Appendix X.

APPENDIX VIII

(see paragraph 31)

Note on the English System of Apportionment of the Cumulo Valuation to Separately Rated Areas

1. The English system is based on a distinction between the "indirectly productive" and the "directly productive" parts of the undertaking and is briefly as follows :—

(a) The annual value of the indirectly productive parts in each rating area is fixed by taking an appropriate percentage of the effective capital value (the contractor's principle).

(b) The balance of the *cumulo* value, representing the annual value of the directly productive parts, is divided among the rating areas in the same proportion as the gross receipts earned in each rating area bear to the gross receipts of the whole undertaking.

Criticism of Apportionment on Structural Costs

2. It may be noted in passing that an English judgment of 1847 criticises apportionment on structural cost in the following terms :—

"The company contend that the division (of the total rateable value) should be according to the amount of fixed capital in each district. But the rule of law, laid down by Act of Parliament, for ascertaining the rateable value of any subject refers to an estimate of the rent it should yield. The outlay of capital might furnish no such criterion; since it may have been injudiciously expended, and what was costly may have become worthless by subsequent changes."

Rates

3. Since it is not known until the apportionment is made what are the rates levied in each rating area and since in the case of waterworks there is partial exemption from general and special rates, it is customary to start from a *cumulo* "net annual value plus rates" of the whole undertaking rather than from a *cumulo* from which rates have been deducted at an overall average poundage on the total rateable value of the whole undertaking.

Indirectly and Directly Productive Works

4. The *cumulo* valuation of the whole undertaking (net annual value plus rates) is divided between the indirectly productive portion of the undertaking, that is, all works, pumping stations, reservoirs and trunk mains, and the directly productive portion, which comprises the supply mains in the areas in which receipts are earned. The principle is that every waterworks may be divided roughly into two kinds of property :—

(i) the pipes which deliver water to the consumers and are thus directly productive of profit; and

(ii) the works for obtaining, storing and treating the water and the carrying mains which convey the water from one work to another or from the works to the areas in which the water is sold; the works and carrying mains being in themselves unproductive but indirectly productive of the profits earned by the other parts of the system.

Often purely arbitrary distinctions have to be drawn to distinguish unproductive from productive mains. In one sense every pipe that supplies more than one consumer is both directly and indirectly productive of profit—directly productive because it delivers water for which the customer pays; indirectly productive because it conveys water past the first customer's premises to deliver to another customer.

Ascertainment of Value of Indirectly Productive Parts in each Rating Area

5. When public utility undertakings were first valued for rating on the profits basis it was found in most cases that the ascertained *cumulo* net annual value showed not less than 5 per cent. on the effective capital value of buildings, etc., and 4 per cent. on that of land comprised in the whole undertaking. The net annual value of the indirectly productive parts was, therefore, taken as 5 per cent. of the effective capital value of buildings, plant and mains plus 4 per cent. of the effective capital value of land. For some time now, however, the *cumulo* net annual values of water undertakings have shown percentages less than these and another method of obtaining a fair and just apportionment of the *cumulo* net annual value had to be found.

6. The first step in the method now almost universally adopted is to find what percentage the *cumulo* value (net annual value plus rates) of the whole undertaking represents of the total effective structural value of the undertaking. This percentage is then applied to the effective structural value of the indirectly productive parts of the undertaking in each rating area to obtain a fair net annual value after deduction of the appropriate rates payable.

Ascertainment of Value of Directly Productive Parts in each Rating Area

7. The subtraction of the total of the net annual values plus rates so arrived at for the indirectly productive parts from the net annual value plus rates of the whole undertaking leaves the total net annual value plus rates of the directly productive portion. This total figure is apportioned to the various rating areas in the same proportion as the gross receipts of the undertaking in these areas bear to the gross receipts of the whole undertaking. The rates leviable or estimated to be leviable in each rating area are then deducted.

Net Annual Value in each Rating Area

8. For each area there has now been ascertained a net annual value of both the directly and the indirectly productive portions of the undertaking. In the case of water undertakings the assessments of *reservoirs* and other indirectly productive parts classed as "land covered with water" are shown separately in the valuation lists as these assessments are sometimes subject to a special deduction from net annual value to arrive at rateable value under Part II of the Second Schedule to the Rating and Valuation Act, 1925. This deduction is made only in boroughs and urban districts and varies with each rating area.

APPENDIX IX (see paragraph 33)

Statements showing the effect as regards the Undertakings valued by the Assessor of Public Undertakings of the Modifications of the Revenue Principle referred to in paragraph 33 of the Report

(I) Estimated net annual and rateable valuations for year 1954-55 of undertakings dealt with by the Assessor of Public Undertakings on modified revenue principle, i.e., treating all water undertakings as non-profit earning by deducting renewals, etc., and also eliminating the 20 per cent. deduction under the Rating (Scotland) Act, 1926. (*Note.*—No sums are being set aside at present in respect of trading reserve funds in the undermentioned undertakings and accordingly no allowance for payments to reserve has been made.)

Water Undertakings	Rateable Value, 1954-55	Proposed Net Annual Value	Proposed Rateable Value (after deducting 50 % of Value of Trunk Mains)
	£	£	£
Aberdeen (Burgh)	50,670	71,253	68,258
*Alloa	3,536	4,420	3,978
Burntisland	1,412	1,672	1,644
*Dumfries (Burgh)	16,052	20,065	18,231
Dundee	39,260	51,737	47,912
*Dunfermline	5,527	6,909	6,321
Edinburgh	75,627	95,929	88,161
*Glasgow	199,797	242,660	211,508
*Gourock	1,626	2,032	1,981
*Grangemouth	24,073	30,091	25,945
Greenock	19,414	27,223	26,732
Kirkcaldy	11,957	15,325	14,956
*Kirkintilloch	561	701	652
*Stranraer	1,797	2,246	†
Troon	4,789	5,914	4,819

* Presently treated as non-profit-earning.

† Information for calculation not available.

(II) Statement showing (a) the allocation of the estimated net annual values after abating all post-war expenditure (i.e., capital expenditure since 1938-39) by 50 per cent., and (b) the rateable values arrived at by reducing the net annual values of all trunk mains by a further 50 per cent.

Water Undertaking	Separately Rated Areas	Values in Roll, 1954-55		Estimated Values on Suggested Method	
		Gross Annual Value	Net Annual and Rateable Value	Net Annual Value	Rateable Value
Aberdeen (Burgh) ...	Aberdeen County ...	£ 14,718	£ 11,775	£ 18,493	£ 16,598
	Kincardine County ...	15,599	12,479	19,732	18,894
	Banchory ...	1,693	1,354	2,290	2,259
	Aberdeen (Burgh) ...	31,328	25,062	30,738	30,507
	Total ...	63,338	50,670	71,253	68,258
Alloa ...	Clackmannan County	2,767	2,214	2,919	2,477
	Alloa ...	1,653	1,322	1,501	1,501
	Total ...	4,420	3,536	4,420	3,978
Burntisland ...	Fife County ...	1,407	1,126	1,416	1,388
	Burntisland ...	358	286	256	256
	Total ...	1,765	1,412	1,672	1,644
Dumfries (Burgh) ...	Kirkcudbright County	17,207	13,765	16,677	14,843
	Dumfries (Burgh) ...	2,858	2,287	3,388	3,388
	Total ...	20,065	16,052	20,065	18,231
Dundee ...	Angus County ...	22,103	17,683	24,622	21,569
	Monifieth ...	453	362	483	483
	Carnoustie ...	442	353	478	478
	Fife County ...	62	49	63	63
	Newport ...	1,230	984	1,458	1,457
	Tayport ...	207	166	220	220
	Perth County ...	2,923	2,339	3,479	3,378
	Dundee ...	21,655	17,324	20,934	20,264
	Total ...	49,075	39,260	51,737	47,912
Dunfermline ...	Perth County ...	1,925	1,540	1,869	1,710
	Kinross County ...	273	219	310	304
	Fife County ...	2,493	1,994	2,822	2,399
	Dunfermline ...	2,218	1,774	1,908	1,908
	Total ...	6,909	5,527	6,909	6,321
Edinburgh ...	Midlothian County ...	32,780	26,222	33,013	31,301
	Dalkeith ...	407	326	445	445
	Bonnyrigg & Lasswade	170	137	163	163
	Loanhead ...	210	168	199	199
	Penicuik ...	494	395	415	415
	Musselburgh ...	841	673	776	776
	Peebles County ...	23,676	18,941	24,593	19,183
	Edinburgh ...	35,956	28,765	36,325	35,679
	Total ...	94,534	75,627	95,929	88,161

Water Undertaking	Separately Rated Areas	Values in Roll, 1954-55		Estimated Values on Suggested Method	
		Gross Annual Value	Net Annual and Rateable Value	Net Annual Value	Rateable Value
		£	£	£	£
Glasgow	Perth County	27,409	21,927	32,320	23,584
	Stirling County	51,904	41,523	59,610	37,221
	Dunbarton County	18,439	14,752	20,039	20,012
	Milngavie	5,474	4,379	5,047	5,047
	Lanark County	13,903	11,123	8,631	8,631
	Renfrew County	5,673	4,538	6,454	6,454
	Barrhead	1,182	945	879	879
	Renfrew	1,137	910	884	884
	Glasgow	122,148	97,719	106,862	106,862
	Clydebank	10	8	9	9
	Rutherglen	2,467	1,973	1,925	1,925
	Total	249,746	199,797	242,660	211,508
Gourock	Renfrew County	1,223	979	1,243	1,194
	Gourock	718	574	697	697
	Greenock	91	73	92	90
	Total	2,032	1,626	2,032	1,981
Grangemouth	Stirling County	19,780	15,824	21,858	17,716
	Grangemouth	9,900	7,920	7,672	7,672
	Falkirk	411	329	561	557
	Total	30,091	24,073	30,091	25,945
Greenock	Renfrew County	7,650	6,120	9,294	9,215
	Greenock	16,618	13,294	17,929	17,517
	Total	24,268	19,414	27,223	26,732
Kirkcaldy	Kinross County	2,086	1,669	2,299	2,299
	Fife County	7,753	6,202	8,649	8,403
	Kirkcaldy	5,107	4,086	4,377	4,254
	Total	14,946	11,957	15,325	14,956
Kirkintilloch	Stirling County	463	371	488	448
	Dunbarton County	6	5	7	7
	Kirkintilloch	219	175	193	184
	Lanark County	13	10	13	13
	Total	701	561	701	652
Stranraer	Wigtown County	1,777	1,422	Information for calculations not available.	
	Stranraer	469	375		
	Total	2,246	1,797	2,246	—
Troon	Ayr County	4,991	3,993	5,022	3,927
	Troon	995	796	892	892
	Total	5,986	4,789	5,914	4,819

APPENDIX X
(see paragraph 35)

Tables illustrating the Application to Representative Undertakings of the Method of Apportionment of the Cumulo Valuation proposed in paragraphs 34 and 35 of the Report

WATER AUTHORITY Separately Rated Areas	Present Rateable Value apportioned on Structural Costs					Rateable Value on Basis proposed by Working Party									Total Rateable Value
	Works at Sources	Trunk Mains	Filters, etc., including Clear Water Tanks	Distribu- tion	Total	Works at Sources		Trunk Mains		Filters, etc.		Distribution			
						Usable Capacity in millis. of gallons	Rateable Value	Cubic Capacity (miles x diameter squared in sq. in.)	Rateable Value	Daily Capacity of Filters	Rateable Value	Receipts from Water Supplied	Rateable Value		
														(1)		(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
	£	£	£	£	£	000,000 galls.	£	£	£	000,000 galls.	£	£	£	£	
*AIRDRIE, COATBRIDGE AND DISTRICT WATER BOARD	8,513	5,607	2,927	9,509	26,556	832	3,839	8,232	3,473	1-575	1,812	105,624	5,436	14,560	
Airdrie	—	963	503	3,254	4,720	—	—	—	—	—	—	27,651	1,423	1,423	
Coatbridge	—	952	497	3,089	4,538	—	—	—	—	—	—	52,389	2,696	2,696	
Glasgow	—	9	5	14	34	—	—	—	—	—	—	384	20	20	
Lanark County	8,513	3,683	1,922	3,110	17,228	832	3,839	8,232	3,473	1-575	1,812	25,200	1,297	10,421	
†EAST LOTHIAN WATER BOARD	6,310	8,136	895	3,958	19,279	532	2,852	8,628	2,261	6-050	1,180	78,435	3,191	9,484	
East Lothian County	6,263	8,051	895	2,684	17,893	529	2,836	6,984	1,830	6-050	1,180	48,510	1,974	7,820	
Midlothian County	47	38	—	9	94	3	16	252	66	—	—	275	11	93	
Cockenzie	—	—	—	122	122	—	—	—	—	—	—	3,866	157	157	
Dunbar	—	—	—	555	555	—	—	—	—	—	—	7,545	307	307	
East Linton	—	—	—	142	142	—	—	—	—	—	—	1,363	56	56	
Haddington	—	47	—	209	236	—	—	1,392	365	—	—	6,387	268	633	
Prestonpans	—	—	—	67	67	—	—	—	—	—	—	3,839	156	156	
Tranent	—	—	—	170	170	—	—	—	—	—	—	6,450	262	262	
‡PAISLEY	27,457	8,772	4,576	10,265	51,070	3,530	12,859	26,161	9,655	14-70	5,037	173,240	13,941	41,492	
Ayr County	17,745	2,344	1,223	21,312	2,182	7,948	12,261	4,525	—	—	—	15	1	12,474	
Renfrew County	4,534	1,776	926	1,076	8,312	1,109	4,040	12,661	4,673	—	—	6,906	556	9,269	
Glasgow	—	—	—	164	164	—	—	—	—	—	—	1,232	99	99	
Johnstone	—	—	—	870	870	—	—	—	—	—	—	4,352	350	350	
Renfrew	—	—	—	411	411	—	—	—	—	2-85	977	2,853	230	1,207	
Paisley	5,178	4,652	2,427	7,744	20,001	239	871	1,239	457	11-85	4,060	157,882	12,705	18,093	
§PERTH BURGH	912	1,094	1,186	5,928	9,120	17-932	2,535	3,784	2,010	6	1,049	44,199	3,013	8,607	
Perth County	—	—	46	45	91	1-612	218	69	35	—	—	2,295	156	409	
Perth Burgh	912	1,094	1,140	5,883	9,029	16-320	2,317	3,715	1,975	6	1,049	41,904	2,857	8,198	
KIRKINTILLOCH	273	78	33	177	561	79-235	705	182	559	1-25	291	10,696	875	2,430	
Dunbarton County	—	—	—	5	5	—	—	—	—	—	—	644	53	53	
Lanark County	—	—	—	10	10	—	—	—	—	—	—	908	74	74	
Stirling County	273	62	33	371	79-235	705	182	559	1-25	291	—	444	36	1,591	
Kirkintilloch	—	16	—	159	175	—	—	—	—	—	—	8,700	712	712	
LARGS	402	1,243	1,101	593	3,339	53-240	819	1,178	649	0-617	339	13,485	1,016	2,823	
Ayr County	402	1,012	1,101	—	2,515	53-240	819	196	108	0-617	339	54	4	1,270	
Largs	—	231	—	593	824	—	—	982	541	—	—	13,431	1,012	1,553	
||TROON	1,299	1,739	907	844	4,789	425-392	1,715	6,340	953	0-972	302	9,529	906	3,876	
Ayr County	1,299	1,739	907	48	3,993	425-392	1,715	6,340	953	0-972	302	434	41	3,011	
Troon	—	—	—	796	796	—	—	—	—	—	—	9,095	865	865	

* The figures are based on a total supply to consumers of 5,110,000 gallons per day, except that a deduction of 630,000 gallons per day has been made in the case of source works (column (7)) in respect of a supply taken under agreement from Lilly Loch, which is owned by the British Transport Commission.

† The figures are based on a total supply of 3,126,000 gallons per day, except that a deduction of 327,000 gallons has been made from the valuation of distribution works (column (13)) in respect of a bulk supply given to North Berwick Town Council for distribution by that authority.

‡ The valuations in columns (7), (9), (11) and (13) are based on the following quantities of water:—

Part of Undertaking		Millions of gallons per day	
Source Works	...	15-0	
Trunk Mains and Filters	...	14-2 (that is, 15-0 less bulk supply to Irvine and District)	
Distribution	...	13-1 (that is, 15-0 less bulk supplies to Irvine and District 0-8; Ayr County, 0-5; and Glasgow, 0-6)	

§ The figures in columns (7), (9) and (11) include the source works, transmission and treatment portions of the "norm" of valuation in respect of a bulk supply of 126,000 gallons per day given to Perth County.

|| The figures in columns (7) and (9) include the source works portion (29 per cent.) and one-half of the transmission portion (say, 11 per cent.) of the "norm" of valuation in respect of bulk supplies amounting to 1,150,000 gallons per day given to Ayr County and the Burgh of Prestwick. Only one-half of the transmission value has been included since it is understood that these bulk supplies are transmitted to the distribution areas partly through mains belonging to the receiving authorities.

WATER AUTHORITY Separately Rated Areas	Present Rateable Value apportioned on Structural Costs					Rateable Value on Basis proposed by Working Party																	
						METHOD A								METHOD B			METHOD C			METHOD D			
	Works at Sources	Trunk Mains	Filters, etc., including Clear Water Tanks	Distribution	Total	Works at Sources		Trunk Mains		Filters, etc.		Distribution		Total Rateable Value	Trunk Mains		Total Rateable Value	Trunk Mains		Total Rateable Value	Trunk Mains		Total Rateable Value
						Usable Capacity in mills. of gallons (6)	Rateable Value (7)	Cubic Capacity (miles x diameter squared in sq. in.) (8)	Rateable Value (9)	Daily Capacity of Filters (10)	Rateable Value (11)	Receipts from Water Supplied (12)	Rateable Value (13)		Cubic Capacity (15)	Rateable Value (16)		Cubic Capacity (18)	Rateable Value (19)		Cubic Capacity (21)	Rateable Value (22)	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	
£	£	£	£	£	000,000 gals. 7,797	£	£	£	000,000 gals. 38-5	£	£	£	£	£	£	£	£	£	£	£	£	£	
EDINBURGH	28,514	12,077	5,106	29,930	75,627		29,258	184,634	23,205		12,107	383,127	36,321	100,891	120,329	23,205	100,891	129,912	23,205	100,891	95,425	23,205	100,891
Midlothian County	17,044	2,720	951	5,507	26,222	4,746	17,809	62,704	7,881	4-0	1,258	61,116	5,794	32,742	48,987	9,447	34,308	50,207	8,968	33,829	43,691	10,624	35,485
Peebles County ...	10,607	8,334	—	—	18,941	2,900	10,882	117,029	14,708	—	—	312	29	25,619	66,441	12,813	23,724	74,804	13,362	24,273	46,883	11,389	22,300
Musselburgh ...	—	—	—	673	673	—	—	—	—	—	—	14,976	1,420	1,420	—	—	1,420	—	—	1,420	—	—	1,420
Penicuik	—	—	—	395	395	—	—	—	—	—	—	3,388	321	321	—	—	321	—	—	321	—	—	321
Dalkeith	—	—	—	326	326	—	—	—	—	—	—	5,861	556	556	—	—	556	—	—	556	—	—	556
Bonnyrigg	—	—	—	137	137	—	—	—	—	—	—	4,306	408	408	—	—	408	—	—	408	—	—	408
Loanhead	—	—	—	168	168	—	—	—	—	—	—	3,301	313	313	—	—	313	—	—	313	—	—	313
City of Edinburgh ...	863	1,023	4,155	22,724	28,765	151	567	4,901	616	34-5	10,849	289,867	27,480	39,512	4,901	945	39,841	4,901	875	39,771	4,901	1,192	40,088

The Edinburgh transmission lines consist partly of built aqueducts (Talla, Gladhouse and North Pentlands) and partly of main pipes (including pipes running across valleys to connect sections of aqueduct). In this exercise four alternative methods of measuring the capacity of the Talla Aqueduct have been used:—

METHOD (A)—Length x height x width (columns (8), (9) and (14)).

METHOD (C)—Length x square of diameter of two pipes of the size (42 in.) estimated to be required to carry the same quantity of water as the aqueduct.

METHOD (B)—Length x half height x width.

METHOD (D)—Length x square of diameter of the two pipes leading from the aqueduct to the filters at Fairmilehead (30 in. and 33 in. diameter).

The Gladhouse and North Pentlands Aqueducts, unlike the Talla one, are understood to be used virtually to full capacity, and they have been measured in terms of length x height x width.

WATER AUTHORITY Separately Rated Areas	Present Rateable Value apportioned on Structural Costs					Rateable Value on Basis proposed by Working Party													
	Works at Sources	Trunk Mains	Other Works (including Gorbals Filters)	Distribu- tion	Total	(i) Cumulo divided into source works, trunk mains, filters, etc., and distribution in ratio 29: 23: 12: 36										(ii) Cumulo divided into source works, trunk mains and distribution in ratio 29: 23: 36.			
						Works at Sources		Trunk Mains		Filters, etc.		Distribution		Total Rateable Value	Works at Sources (apportioned as in Col. (6))	Trunk Mains (apportioned as in Col. (8))	Distribu- tion (apportioned as in Col. (12))	Total Rateable Value	
						Usable Capacity in mills. of gallons	Rateable Value	Cubic Capacity (miles x diameter squared in sq. in.)	Rateable Value	Daily Capacity of Filters	Rateable Value	Receipts from Water Supplied	Rateable Value						
																			(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	
£	£	£	£	£	000,000 galls. 22,555	£	£	£	000,000 galls. 5,961	£	£	£	£	£	£	£	£		
GLASGOW	19,487	43,085	49,375	87,850	199,797	75,837	569,606	60,147	31,381	914,560	94,142	261,507	86,179	68,348	106,980	261,507			
Dunbarton County ...	—	40	13,393	1,319	14,752	1,122	3,773	22,810	2,408	—	7,370	759	6,940	4,287	2,737	862	7,886		
Lanark County ...	—	—	7,029	4,094	11,123	—	—	—	—	—	52,257	5,379	5,379	—	—	6,113	6,113		
Perth County ...	10,074	11,853	—	—	21,927	15,726	52,876	84,480	8,921	—	381	39	61,836	60,087	10,137	44	70,268		
Renfrew County ...	4,018	—	20	500	4,538	1,058	3,557	—	5-961	31,381	866	89	35,027	4,042	—	101	4,143		
Stirling County ...	5,395	31,192	4,876	60	41,523	4,649	15,631	462,316	48,818	—	4,881	502	64,951	17,763	55,474	571	73,808		
Barhead	—	—	—	945	945	—	—	—	—	—	9,864	1,015	1,015	—	—	1,154	1,154		
Clydebank	—	—	—	8	8	—	—	—	—	—	—	—	—	—	—	—	—		
Milngavie	—	—	3,739	640	4,379	—	—	—	—	—	4,931	508	508	—	—	577	577		
Renfrew Burgh ...	—	—	—	910	910	—	—	—	—	—	28,415	2,925	2,925	—	—	3,324	3,324		
Rutherglen	—	—	199	1,774	1,973	—	—	—	—	—	14,611	1,504	1,504	—	—	1,709	1,709		
City of Glasgow ...	—	—	20,119	77,600	97,719	—	—	—	—	—	790,984	81,422	81,422	—	—	92,525	92,525		

From the information supplied by the Corporation it appears that under (i) the whole valuation in respect of treatment works would fall to be allocated to the Gorbals Works filters in the County of Renfrew. These are Glasgow's only filters and their capacity is only about 6 million gallons per day, as compared with a total supply of about 88 million gallons, and they represent only 0-01 per cent. of the structural costs of the whole Glasgow undertaking. It is suggested that in such circumstances it may be fairer to exclude the filters from the calculation and to apportion on the ratio between the other parts of the undertaking as under (ii).